

### **REMARKS**

This responds to the Office Action mailed on January 24, 2007.

Claims 1, 2, 8, 9, 13, 19, 20, 79-84, and 86 and withdrawn claims 26, 27, 33, 34, 40, 41, 48, and 49 are amended, no claims are canceled, and claims 92-97 are added; as a result, claims 1-51 and 79-97 are now pending in this application with claims 1-25 and 79-97 currently being examined. The amendments to the claims are fully supported by the specification as originally filed. No new matter is introduced. Applicant respectfully requests reconsideration of the above-identified application in view of the amendments above and the remarks that follow.

Support for the amendments to claim 1 may be found in the specification, for example, at page 5, lines 10-13. Claims 2 and 8 are amended to follow the language of amended claim 1. Support for the amendments to claim 9 may be found in the specification, for example, at page 6, lines 17-21. Support for the amendments to claim 13 may be found in the specification, for example, at page 5, lines 10-13 and page 19, lines 1-6. Claim 19 is amended to follow the language of amended claim 13. Support for the amendments to claim 20 may be found in the specification, for example, at page 5, lines 10-13 and page 19, lines 1-6. Support for the amendments to withdrawn claims 26 and 40 may be found in the specification, for example, at page 5, lines 10-13. Claims 27, 33, and 34 and claims 41, 48, and 49 are amended to follow the language of amended claims 26 and 40, respectively. Support for the amendments to claim 79 may be found in the specification, for example, at page 5, lines 10-13 and page 6, lines 17-21. Claims 80-84 and 86 are amended to follow the language of amended claim 79. Support for claims 92 and 93 may be found in the specification, for example, at page 4, lines 25-28. Support for claims 95 and 97 may be found in the specification, for example, at page 4, lines 25-28 and page 12, lines 5-11. Support for claims 94 and 96 may be found in the specification, for example, at page 5, lines 18-20 and page 12, lines 9-11.

### **Objection to the Abstract**

The Abstract is amended in line with the method claims of the instant application as suggested by the Examiner and is amended to provide a more concise statement. No new matter is introduced.

First §112 Rejection of the Claims

Claims 1-51 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Applicant traverses these grounds of rejection of these claims.

M.P.E.P. § 2163 II states, in part:

Office personnel should adhere to the following procedures when reviewing patent applications for compliance with the written description requirement of 35 U.S.C. 112, para. 1. The examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims. There is a strong presumption that an adequate written description of the claimed invention is present in the specification as filed, *Wertheim*, 541 F.2d at 262, 191 USPQ at 96; however, with respect to newly added or amended claims, applicant should show support in the original disclosure for the new or amended claims. See MPEP § 714.02 and § 2163.06 (“Applicant should \* \* \* specifically point out the support for any amendments made to the disclosure.”); and MPEP § 2163.04 (“If applicant amends the claims and points out where and/or how the originally filed disclosure supports the amendment(s), and the examiner finds that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of the filing of the application, the examiner has the initial burden of presenting evidence or reasoning to explain why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.”). Consequently, rejection of an original claim for lack of written description should be rare. The inquiry into whether the description requirement is met is a question of fact that must be determined on a case-by-case basis. See *In re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972) (“Precisely how close [to the claimed invention] the description must come to comply with Sec. 112 must be left to case-by-case development.”); *In re Wertheim*, 541 F.2d at 262, 191 USPQ at 96 (inquiry is primarily factual and depends on the nature of the invention and the amount of knowledge imparted to those skilled in the art by the disclosure).

In the Office Action, it is stated:

In claim 1, from which claims 2-12 depend, the phrase “at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas” is deemed new matter as there is no support for such a limitation in the original specification. The only mention of bond energy is in paragraph 19 and it is in reference to a target bond energy.

Paragraph [0019] of the publication of the instant application recites:

[0019] In an embodiment, to provide control of the energy of activation of a gas precursor, a laser source is provided to generate electromagnetic energy having a frequency tuned to the desired absorption frequency of the gas precursor. The laser source provides packets of energy specifically tuned to a target bond energy. Upon irradiation by the tuned electromagnetic energy, specific bonds of a precursor are destabilization leading to a chemical reaction with other precursors introduced into a reaction chamber or with the surface of the substrate on which material is being deposited. Providing control of the energy of activation can be considered as providing point of use activation. In the various embodiments, point of use activation provides heating essentially at localized levels without the general heating of the gas precursor and other gases, including carrier gases, in a gas flow.

As can be understood by one skilled in the art, since, in the first sentence of the paragraph [0019], electromagnetic energy is provided to control activation of a gas, the gas is a target. The target bond energy in the second sentence of the paragraph [0019] refers to a bond energy of a gas in the first sentence of the paragraph [0019] that is the target of electromagnetic energy. Claim 1 of the instant application recites “activating a gas . . . by irradiating the gas with electromagnetic energy at a frequency tuned . . . to a bond energy of the gas.” Use of the expression “the gas” refers back to “activating a gas,” which makes the gas a target and makes a bond energy of the gas a target bond energy. Therefore, Applicant submits that claim 1 complies with the written description requirement under 35 U.S.C. 112, first paragraph.

Similar support for independents claim 13 and 20 may be found in the specification, for example, on page 5, lines 10-20, page 9, lines 25-27, page 10, line 15 – page 11, line 4, and page 3, line 28 - page 4, line 2. For at least reasons similar to those discussed above with respect to claim 1, Applicant submits that claims 2-51 also comply with the written description requirement under 35 U.S.C. 112, first paragraph.

For at least the reasons stated above, Applicant submits that a person skilled in the art would recognize that the written description of the invention provides support for the claims.

However, to further prosecution of the instant application, Applicant amends claim 1 to further clarify the claim. In addition, independent claims 13, 20, and 79 and independent withdrawn claims 26 and 40 are amended to include features similar to the amended features of claim 1.

Applicant respectfully requests withdrawal of these rejections of claims 1-51, and reconsideration and allowance of these claims.

Second §112 Rejection of the Claims

Claims 1-51 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicant traverses these grounds of rejection of these claims.

In the Office Action, it is stated that “[i]n claim 1, from which claims 2-12 depend, the phrase ‘at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas’ is deemed nonenabling . . . Specifically what bond energy is the claim referring to?” Claim 1 recites “activating a gas . . . by irradiating the gas with electromagnetic energy at a frequency tuned . . . to a bond energy of the gas.” Applicant submits that “a bond energy of the gas” in claim 1 refers back to the gas affirmatively recited as being irradiated. Applicant submits that one skilled in the art understands the term “bond energy” as used in claim 1 and as enabled in the specification of the instant application. Further, Applicant submits that claim 1 need not be limited to one embodiment related to a specific bond energy of one specific composition of a gas. In addition, Applicant submits that the fact that electromagnetic energy has a corresponding frequency or wavelength is known to one skilled in the art. Thus, Applicant submits that one skilled in the art may practice claim 1 based on the features recited in claim 1.

For at least the reasons stated above, Applicant submits that claim 1 complies with the enablement requirement under 35 U.S.C. 112, first paragraph. For at least reasons similar to those discussed above with respect to claim 1, Applicant submits that claims 2-51 also comply with the enablement requirement under 35 U.S.C. 112, first paragraph.

However, to further prosecution of the instant application, Applicant amends claim 1 to further clarify the claim. In addition, independent claims 13, 20, and 79 and independent withdrawn claims 26 and 40 are amended to include features similar to the amended features of claim 1.

Applicant respectfully requests withdrawal of these rejections of claims 1-51, and reconsideration and allowance of these claims.

Third §112 Rejection of the Claims

Claims 1-51 were rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Applicant traverses these grounds of rejection of these claims.

In the Office Action, it is stated that “[i]n claim 1, from which claims 2-12 depend, . . . it

is not clear how one elects a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas.” Applicant submits that one skilled in the art understands the term “bond energy” as used in claim 1 and as supported in the specification of the instant application. In addition, Applicant submits that the fact that electromagnetic energy has a corresponding frequency or wavelength is known to one skilled in the art. Further, Applicant submits that claim 1 need not be limited to one embodiment related to a specific bond energy of one specific composition of a gas. Thus, Applicant submits that the claim 1 is not indefinite. For at least reasons similar to those discussed above with respect to claim 1, Applicant submits that claims 2-51 also are not indefinite.

However, to further prosecution of the instant application, Applicant amends claim 1 to further clarify the claim. In addition, independent claims 13, 20, and 79 and independent withdrawn claims 26 and 40 are amended to include features similar to the amended features of claim 1.

Applicant respectfully requests withdrawal of these rejections of claims 1-51, and reconsideration and allowance of these claims.

*First §103 Rejection of the Claims*

Claims 79-91 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rose (U.S. 4,543,486) in view of Wang (U.S. 5,733,609). Applicant traverses these grounds of rejection of these claims.

Applicant cannot find in the combination of Rose and Wang, as proffered in the Office Action, a teaching or a suggestion of a method for forming a film on a substrate that includes irradiating a gas with electromagnetic energy at a frequency tuned to a bond energy of the gas, as recited in claim 79. Therefore, Applicant submits that the combination of Rose and Wang does not teach or suggest all the elements of claim 79 and that claim 79 is patentable over Rose in view of Wang.

Claims 80-91 depend on claim 79. Applicant submits that claims 80-91 are patentable over Rose in view of Wang for at least the reasons stated herein.

Applicant respectfully requests withdrawal of these rejections of claims 79-91, and reconsideration and allowance of these claims.

Second §103 Rejection of the Claims

Claims 79-91 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schachameyer et al. (U.S. 4,940,505) in view of Wang. Applicant traverses these grounds of rejection of these claims.

Applicant cannot find in the combination of Schachameyer et al. (hereafter Schachameyer) and Wang, as proffered in the Office Action, a teaching or a suggestion of a method for forming a film on a substrate that includes irradiating a gas with electromagnetic energy at a frequency tuned to a bond energy of the gas, as recited in claim 79. Therefore, Applicant submits that the combination of Schachameyer and Wang does not teach or suggest all the elements of claim 79 and that claim 79 is patentable over Schachameyer in view of Wang.

Claims 80-91 depend on claim 79. Applicant submits that claims 80-91 are patentable over Schachameyer in view of Wang for at least the reasons stated herein.

Applicant respectfully requests withdrawal of these rejections of claims 79-91, and reconsideration and allowance of these claims.

New Claims

New claims 92-94, claims 95 and 96, and claim 97 depend from claims 1, 13, and 20, respectively. Applicant respectfully requests consideration and allowance of claims 92-97.

Withdrawn Claims

Withdrawn independent claims 26 and 40 are amended in line with the amendments to claim 1. Applicant submits that the withdrawn claims include features additional to features of claim 1 and are linked to claim 1. With the allowance of claim 1, Applicant respectfully requests the rejoinder and allowance of claims 26-51. *See M.P.E.P. 809 and 821.04.*

**Reservation of Rights**

Applicant does not agree with one or more comments in the instant Office Action. However, Applicant has limited the discussion of the Office Action rejections to such discussion as is necessary to efficiently expedite the prosecution of the abovementioned application.

Applicant reserves the right to further address the comments of the Examiner at a later date if necessary.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 371-2157 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By their Representatives,

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Date 4 April 2007

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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 4 day of April 2007.

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